UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/966,985	11/10/1997	JEFFREY JACOBSEN	0717.1112-011	6374

21005 7590 11/25/2008

HAMILTON, BROOK, SMITH & REYNOLDS, P.C.
530 VIRGINIA ROAD
P.O. BOX 9133
CONCORD, MA 01742-9133

EXAMINER	
PIZIALI, JEFFREY J	
ART UNIT	PAPER NUMBER
2629	

MAIL DATE	DELIVERY MODE
11/25/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	08/966,985	JACOBSEN ET AL.	
	Examiner	Art Unit	
	Jeff Piziali	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 July 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20,22-27 and 37-39* is/are pending in the application.

4a) Of the above claim(s) *9,11,17,19 and 20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-8,10,12-16,18,22-27 and 37-39* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 November 2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 21 July 2008 has been entered.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

3. The drawings have not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the figures.

Specification

4. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-8, 10, 12-16, 18, 22-27, and 37-39 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claim 1 recites the limitation "***the image***" (in line 8). There is insufficient antecedent basis for this limitation in the claim.

8. Claim 1 recites the limitation "***the reflected light***" (in line 14). There is insufficient antecedent basis for this limitation in the claim.

9. Claim 1 recites the limitation "***the power consumption***" (in line 15). There is insufficient antecedent basis for this limitation in the claim.

10. Claim 1 recites the limitation "***the display circuit***" (in line 17). There is insufficient antecedent basis for this limitation in the claim.

11. Claim 6 recites the limitation "***the display***" (in line 8). There is insufficient antecedent basis for this limitation in the claim.

12. Claim 6 recites the limitation "***the light emitting diode***" (in line 9). There is insufficient antecedent basis for this limitation in the claim.

13. Claim 6 recites the limitation "***the power consumption***" (in line 18). There is insufficient antecedent basis for this limitation in the claim.

14. Claim 6 recites the limitation "***the display circuit***" (in line 17). There is insufficient antecedent basis for this limitation in the claim.

15. Claim 12 recites the limitation "***the display***" (in line 8). There is insufficient antecedent basis for this limitation in the claim.

16. Claim 12 recites the limitation "***the matrix display***" (in line 13). There is insufficient antecedent basis for this limitation in the claim.

17. Claim 12 recites the limitation "***the power consumption***" (in line 17). There is insufficient antecedent basis for this limitation in the claim.

18. Claim 12 recites the limitation "***the display circuit***" (in line 19). There is insufficient antecedent basis for this limitation in the claim.

19. The remaining claims are rejected under 35 U.S.C. 112, second paragraph, as being dependent upon rejected base claims.

20. The claims are rejected under 35 U.S.C. 112, second paragraph, as being indefinite.

As a courtesy to the Applicant, the examiner has attempted to also make rejections over prior art -- based on the examiner's best guess interpretations of the invention that the Applicant is intending to claim.

However, the indefinite nature of the claimed subject matter naturally hinders the Office's ability to search and examine the application.

Any instantly distinguishing features and subject matter that the Applicant considers to be absent from the cited prior art is more than likely a result of the indefinite nature of the claims.

The Applicant is respectfully requested to correct the indefinite nature of the claims, which should going forward result in a more precise search and examination.

Claim Rejections - 35 USC § 103

21. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

22. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

23. Claims 1-4 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over ***Wilska et al. (UK - 2,289,555)*** in view of ***Takahara et al. (US 5,436,635)*** and ***Helms (US 5,760,760 A)***.

Regarding claim 1, Wilska discloses a portable communications device having a reflective display comprising a device housing [e.g., Fig. 1, 1] having a wireless receiver [e.g., Fig. 1, 18]; a display [e.g., Fig. 1, 9] having an array of pixel electrodes; a display control circuit [e.g., Fig. 3, 6] positioned in the housing and connected to the wireless receiver and the matrix display such that image data that is received by the receiver is input to the display control circuit, which generates a display signal to drive the matrix display to render the image (see the entire document, including Page 3, Paragraph 8 - Page 6, Paragraph 1). Wilska does not expressly disclose an active matrix display, a light emitting diode, an optical coupler, and a power management circuit.

However, Takahara does disclose an active matrix display [e.g., Fig. 21, 214] having an active matrix circuit [e.g., Fig. 11; T_{mn}] and an array of pixel electrodes [e.g., Fig. 11; P_{mn}], the active matrix circuit capable of storing charge between vertical synchronization signals (see the entire document, including Column 20, Lines 26-51); a light emitting diode light source [e.g., Fig. 21, 211] optically coupled to illuminate the matrix display for illuminating the image; and

an optical coupler [e.g., Fig. 21, 213] that couples light from the light source onto the matrix display and the reflected light toward a viewer (see the entire document, including Column 28, Lines 30-49 and Column 33, Lines 22-28), and a power management circuit [e.g., Fig. 22, 223] that lowers the power consumption of the control circuit [e.g., Fig. 22, 225] between vertical synchronization signals (see the entire document, including Column 31, Lines 16-63), the power management circuit [e.g., Fig. 22, 223] arranged for receiving control signals [e.g., pulse width variable signals from the 'variable resistor' (which is not illustrated), and the circuit within the light emitting tube power supply for modulating the anode voltage with a pulse signal (which is also not explicitly illustrated)] for lowering the power consumption, the control signals resulting from signals from a display control circuit [e.g., Fig. 22, the combined circuitry of the reproduction circuit (225), variable resistor (which is not illustrated), and the circuit within the light emitting tube power supply for modulating the anode voltage with a pulse signal (which is also not explicitly illustrated)] that are initiated by the display control circuit, the power management circuit and the display control circuit being connected together and arranged in a configuration that lowers the power consumption is a user adjustable manner (see the entire document, including Column 31, Lines 16-63).

Takahara does not expressly disclose the power management circuit and the display control circuit being connected together and arranged in a configuration that lowers the power consumption is a self-regulating manner, as instantly claimed.

However, Helms does disclose a power management circuit [e.g., Fig. 2; 14 & 204] that controls the power consumption of a display control circuit [e.g., Fig. 2; 10], the power management circuit [e.g., Fig. 2; 14 & 204] lowering the power consumption of the display

circuit [e.g., Fig. 2; 10] between vertical synchronization signals, the power management circuit [e.g., Fig. 2; 14 & 204] arranged for receiving control signals [e.g., Fig. 2; 214] for lowering the power consumption, the control signals [e.g., Fig. 2; 214] resulting from signals from the display control circuit [e.g., Fig. 2; 10] that are initiated by the display control circuit [e.g., Fig. 2; 10], the power management circuit [e.g., Fig. 2; 14 & 204] and the display control circuit [e.g., Fig. 2; 10] being connected together and arranged in a configuration that lowers the power consumption in a self regulating manner where the power consumption is lowered [*e.g., when displaying a black/blank image in an otherwise dark room*] after a frame of data is written [*e.g., after first displaying a bright image in an otherwise dark room*] on the matrix display and raised when a new frame of data is written [*e.g., when displaying a new bright image in an otherwise dark room*] (see the entire document, including Column 3, Line 25 - Column 4, Line 5).

Wilska, Takahara, and Helms are analogous art because they are from the field of portable communications devices. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of the invention, to use Helms' self regulating power management circuit in conjunction with Takahara's active matrix display, LED light source, optical coupler assembly, and power management circuit, and with Wilska's communication device, so as to provide a high quality and energy efficient liquid crystal image that's easy to see (and read) in both dark and bright light.

Regarding claim 2, Takahara discloses reflective pixel electrodes (see the entire document, including Column 7, Lines 50-56) and further comprising a transistor circuit formed

with single crystal silicon [e.g., Fig. 18A, 167c] associated with each pixel electrode (see the entire document, including Column 24, Line 35 - Column 25, Line 59).

Regarding claim 3, Takahara discloses a color sequential display circuit (see the entire document, including Fig. 15; Column 23, Lines 12-37).

Regarding claim 4, Takahara discloses a switching circuit [e.g., Fig. 1, 11-14] connected to a counterelectrode panel of the matrix display for switching the applied voltage to the counterelectrode panel (see the entire document, including Column 13, Lines 20-65).

Regarding claim 37, Takahara discloses the power consumption of the control circuit being lowered without comparing sequential image data (see the entire document, including Column 31, Lines 16-63).

24. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over ***Wilska et al. (UK - 2,289,555)*** in view of ***Takahara et al. (US 5,436,635)*** and ***Helms (US 5,760,760 A)*** as applied to claim 3 above, and further in view of ***Shigeta et al. (US 5,394,204)***.

Regarding claim 5, neither Wilska nor Takahara nor Helms expressly disclose a dichroic prism. However, Shigeta discloses a dichroic prism [e.g., Fig. 9, 63] (see the entire document, including Column 1, Lines 14-39). Wilska, Takahara, Helms, and Shigeta are analogous art because they are from the field of matrix display systems. Thus, it would have been obvious to a

person of ordinary skill in the art, at the time of the invention, to utilize Shigeta's prism system with Wilska's and Takahara's combined communications device to provide a large-sized color image.

25. Claims 6-8, 10, 12-16, 18, 22-27, 38, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over ***Wilska et al. (UK - 2,289,555)*** in view of ***Takahara et al. (US 5,436,635)***, ***Helms (US 5,760,760 A), Shigeta et al. (US 5,394,204)***, and ***Yagyu (US 5,856,814)***.

Regarding claim 6, this claim is rejected by the reasoning applied in the above rejection of claims 1, 3, and 5; furthermore, Wilska discloses a battery [e.g., Fig. 3, 3]. None of Wilska, Takahara, Helms, and Shigeta expressly disclose the light source being three light emitting diodes of three distinct colors. However, Yagyu discloses a light source [e.g., Fig. 10, 104] that is three light emitting diodes [e.g., Fig. 10, EDR, EDG and EDB] of three distinct colors (see the entire document, including Column 8, Lines 19-47). Wilska, Takahara, Shigeta, and Yagyu are all analogous art because they are from the field of liquid crystal displays. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of the invention, to utilize Yagyu's three light emitting diodes system as Wilska's, Takahara's, and Shigeta's combined light source, so as to provide a color display for easy viewing.

Regarding claims 7 and 15, Takahara discloses a diffuser (see the entire document, including Column 4, Lines 14-46).

Regarding claim 8, Shigeta discloses at least one dichroic mirror [e.g., Fig. 10, 56-59] for directing the light from one light emitting diode and allowing light from another light emitting diode to pass through (see the entire document, including Column 1, Lines 14-39 and Column 7, Lines 3-15).

Regarding claims 10 and 18, Wilska discloses a telephone [e.g., Fig. 3, 17] (see the entire document, including Page 5, Paragraph 3).

Regarding claim 12, this claim is rejected by the reasoning applied in the above rejection of claims 1, 2, 5, and 6.

Regarding claims 13 and 23, this claim is rejected by the reasoning applied in the above rejection of claim 3.

Regarding claim 14, while Wilska does not expressly disclose an array of at least 640 x 480 pixel electrodes, Wilska does disclose providing a resolution greater than 640 x 200 pixels[2] (see the entire document, including Page 4, Paragraph 2). Therefore, for the purpose of providing a precise display image, it would have been additionally obvious to an artisan at the time of invention to utilize 640 x 480 pixel electrodes.

Regarding claims 16 and 22, Shigeta discloses a pair of dichroic mirrors [e.g., Fig. 10, 56-59], each mirror for directing the light from one light emitting diode and allowing light from

at least another light emitting diode to pass through (see the entire document, including Column 1, Lines 14-39 and Column 7, Lines 3-15).

Regarding claim 24, this claim is rejected by the reasoning applied in the above rejection of claim 4.

Regarding claim 25, this claim is rejected by the reasoning applied in the above rejection of claim 6.

Regarding claim 26, this claim is rejected by the reasoning applied in the above rejection of claim 8.

Regarding claim 27, Yagyu discloses the three light emitting diodes are flashed concurrently to emit white light (see the entire document, including Column 8, Lines 19-47).

Regarding claim 38, this claim is rejected by the reasoning applied in the above rejection of claim 37.

Regarding claim 39, this claim is rejected by the reasoning applied in the above rejection of claim 37.

Response to Arguments

26. Applicant's arguments filed 21 July 2008 have been fully considered but they are not persuasive.

The Applicant contends, "[***Helms'***] *Brightness control circuitry 204 arid processor 204a do not receive control signals for lowering the power consumption as specified in the claimed invention. More specifically, lowering the brightness of the LCD panel 12 in response to lower ambient light, only lowers power consumption under low ambient light conditions, and is not lowered as a consequence of writing a frame of data on a matrix display, and then raised when a new frame of data is written, as now claimed by Applicants.*

Accordingly, Claims 1-8, 10, 12-16, 18, 22-27, and 37-39, as amended, are not obvious in view of ***Wilska***, ***Takahara*** *and* ***Helms****, together, or further in view of* ***Shigeta*** *and* ***Yagyu****, since none of the references, alone or in combination, teach or suggest a 'power management circuit arranged for receiving control signals for lowering the power consumption, the control signals resulting from signals from the display control circuit that are initiated by the display control circuit, the power management circuit and the display control circuit being connected together and arranged in a configuration that lowers the power consumption in a self regulating manner where the power consumption is lowered after a frame of data is written on the matrix display and raised when a new frame of data is written,' as recited in base Claims 1, 6 and 12, as amended*" (see page 10 of the response filed 21 July 2008). However, the examiner respectfully disagrees.

Helms teaches, "*the contents of an LCD can be much more easily viewed in a* ***dark room*** *than a* ***bright one****. Hence, a user could take advantage of that fact by* ***decreasing the brightness*** *level of the LCD whenever ambient lighting conditions permit and then subsequently* ***increasing the brightness level only when necessitated by bright ambient lighting conditions****... Accordingly, what is needed is an intelligent LCD brightness control system which* ***automatically adjusts to the ambient lighting conditions of the environment in which the PC is being used***" (see Column 1, Line 45 - Column 2, Line 2).

The Applicant states, "*brightness [level of* ***Helms'*** *LCD panel] can be maintained, or raised or lowered to a viewable level by photodetector 14, based upon the surrounding ambient light*" (see page 9, second to last paragraph, of the response filed 21 July 2008).

The Applicant continues, "*If [****Helms'****] processor 204a determines there is a new ambient light signal (AL), processor 204a outputs the appropriate brightness control signal (BC) on line 210 to LCD Panel 12 for increasing or decreasing brightness. When the brightness is increased, power consumption is increased*" (see page 9, second to last paragraph, of the response filed 21 July 2008).

Preamble: Should ***Helms'*** device [*Figs. 1, 2; 10*] be placed in an otherwise dark (unlit) room, the LCD panel [*Figs. 1, 2; 12*] would constitute the only available light source in the room.

Step 1: When a bright white image [*frame of data*] is first written/displayed on the LCD, the panel will emit light into the room, and inherently the level of ambient light in the room will increase. This ambient light increase will be detected by **Helms'** photodetector [*Fig. 2; 14*]. And in turn, processor 204a will determine there is a new ambient light signal (AL), processor 204a will output the appropriate brightness control signal (BC) on line 210 to LCD 12 for increasing panel brightness. The brightness is increased, and the power consumption is increased.

Step 2: When the LCD stops displaying the bright white image (and the LCD displays a blank/black screen instead, for example), the sensed ambient room light will drop, the LCD's brightness will be lowered, and power consumption will be lowered accordingly. Note: this step transpires "*after the 'frame of data' [the white image] is written on the display.*"

Step 3: When another bright image [*new frame of data*] is next written/displayed on the LCD, the panel will again emit light into the room, the sensed ambient room light will increase, the LCD's brightness will be increased, and power consumption will be increased accordingly.

As such, ***Helms (US 5,760,760 A)*** discloses a power management circuit [e.g., Fig. 2; 14 & 204] that controls the power consumption of a display control circuit [e.g., Fig. 2; 10],

the power management circuit [e.g., Fig. 2; 14 & 204] lowering the power consumption of the display circuit [e.g., Fig. 2; 10] between vertical synchronization signals (wherein, for example, whenever ambient light conditions automatically lower the LCD panel's 12 brightness, power consumption is lowered as a result),

the power management circuit [e.g., Fig. 2; 14 & 204] arranged for receiving control signals [e.g., Fig. 2; "automatic brightness level ABL" signals] for lowering the power consumption (see the entire document, including Column 4, Lines 52-67; wherein Helms discloses "*As a power saving measure, an additional step could be added in which a comparison is made between the level of the AL and USBL signals and, responsive to the comparison, the brightness level of the LCD 12 is dictated by the lower (i.e., dimmer) of the two signals*"),

the control signals [e.g., Fig. 2; "automatic brightness level ABL" signals] resulting from signals [e.g., Fig. 2; "ambient light AL" and "user-selected brightness level USBL" signals] from the display control circuit [e.g., Fig. 2; 10] that are initiated by the display control circuit [e.g., Fig. 2; 10],

the power management circuit [e.g., Fig. 2; 14 & 204] and the display control circuit [e.g., Fig. 2; 10] being connected together and arranged in a configuration that lowers the power consumption in a self regulating manner

where the power consumption is lowered [*e.g., when displaying a black/blank image in an otherwise dark room*] after a frame of data is written [*e.g., after first displaying a bright image in an otherwise dark room*] on the matrix display and raised when a new frame of data is written [*e.g., when displaying a new bright image in an otherwise dark room*] (see the entire document, including Column 3, Line 25 - Column 4, Line 5), as instantly claimed.

Applicant's arguments with respect to claims 1-8, 10, 12-16, 18, 22-27, and 37-39 have been considered but are moot in view of the new ground(s) of rejection.

By such reasoning, rejection of the claims is deemed necessary, proper, and thereby maintained at this time.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Piziali whose telephone number is (571)272-7678. The examiner can normally be reached on Monday - Friday (6:30AM - 3PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chanh Nguyen can be reached on (571) 272-7772. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jeff Piziali/
Primary Examiner, Art Unit 2629
21 November 2008